

AMENDMENTS TO THE CLAIMS

1. (currently amended) A hybrid inflator for an inflating-type safety system of vehicles provided with an air bag, comprising:

an inflator housing containing pressurized medium therein, and having a gas exit opening closed by a rupturable disk and provided in a vicinity of a first end portion of the inflator housing;

a gas generator installed in the inflator housing and attached to a second end portion of the inflator housing opposing said first end portion with respect to a longitudinal direction of the inflator housing, said gas generator having at least one gas generating chamber ~~for storing a gas generating agent therein~~ and a plurality of ports formed along a longitudinal direction of the gas generator in a circumferential wall thereof extending along the longitudinal direction to establish a fluid communication between the gas generating chamber and an interior of the inflator housing;
~~the~~

gas generating agent provided inside the gas generating chamber, the gas generating agent being a mixture of at least a fuel and an oxidizing agent for generating a predetermined amount (B) of combustion gas by combustion thereof, a molar ratio (A/B) between an amount (A moles) of the pressurized medium and the

amount (B moles) of a gas generated due to combustion of the gas generating agent is between $8/2$ and $1/9$; and

an ignition unit connected to the gas generator and adapted to ignite the gas generating agent.

2. (previously amended) A hybrid inflator according to claim 1, wherein the ratio A/B is $8/2$ to $3/7$.

3. (previously amended) A hybrid inflator according to claim 1 or 2, wherein the gas generating agent includes a fuel and an oxidizing agent.

4. (previously amended) A hybrid inflator according to claim 1 or 2, wherein the gas generating agent includes a fuel, an oxidizing agent, and a slug-forming agent.

5. (previously amended) A hybrid inflator according to claim 3, wherein the fuel is guanidine derivatives.

6. (previously amended) A hybrid inflator according to claim 3, wherein the fuel is a non-azide organic compound except the nitramine compounds.

7. (previously amended) A hybrid inflator according to claim 1, wherein a pressure index of the gas generating agent is less than 0.8.

8. (previously amended) A hybrid inflator according to claim 1, wherein a weight ratio (a/b) between a weight (a) of the pressurized medium and a weight (b) of the gas generating agent is 0.1 to 7.

9. (currently amended) A hybrid inflator for an inflating-type safety system of vehicles provided with an air bag, comprising:

an inflator housing containing a pressurized medium therein that includes an inert gas and no oxygen, said inflator housing having a gas exit opening closed by a rupturable disk and provided in a vicinity of a first end portion of the inflator housing;

a gas generator installed in the inflator housing and attached to a second end portion of the inflator housing opposing said first end portion with respect to a longitudinal direction of the inflator housing, said gas generator having at least one gas generating chamber ~~for storing a gas generating agent therein~~ and a plurality of ports formed along a longitudinal direction of the gas generator in a circumferential wall thereof extending along the longitudinal direction to establish a fluid communication between the gas generating chamber and an interior of the inflator housing;

a gas generating agent provided in the gas generating chamber,
a molar ratio (A/B) between an amount (A moles) of the pressurized

medium and an amount (B moles) of a gas generated due to combustion of the gas generating agent being ~~is~~ between 8/2 and 1/91/8; and

an ignition unit connected to the gas generator and adapted to ignite the gas generating agent.

10. (previously amended) A hybrid inflator according to claim 9, wherein the ratio A/B is 8/2 to 3/7.

11. (previously amended) A hybrid inflator according to claim 9 or 10, wherein the gas generating agent includes a fuel and an oxidizing agent.

12. (previously amended) A hybrid inflator according to claim 9 or 10, wherein the gas generating agent includes a fuel, an oxidizing agent, and a slug-forming agent.

13. (previously amended) A hybrid inflator according to claim 11, wherein the fuel is guanidine derivative.

14. (previously amended) A hybrid inflator according to claim 11, wherein the fuel is a non-azide organic compound except the nitramine compounds.

15. (previously amended) A hybrid inflator according to claim 9, wherein a pressure index of the gas generating agent is less than 0.8.

16. (previously amended) A hybrid inflator according to claim 9, wherein a weight ratio (a/b) between a weight (a) of the pressurized medium and a weight (b) of the gas generating agent is 0.1 to 7.

17. (currently amended) A hybrid inflator for an inflating-type safety system of vehicles provided with an air bag, comprising:

an inflator housing containing a pressurized medium including an inert gas therein and having a gas exit opening closed by a rupturable disk and provided in a vicinity of a first end portion of the inflator housing, the pressurized medium containing no oxygen;

a gas generating agent including a fuel and an oxidizing agent;

a gas generator installed in the inflator housing and attached to a second end portion of the inflator housing opposing said first end portion with respect to a longitudinal direction of the inflator housing, said gas generator having at least one gas generating chamber that contains the gas generating agent and having a plurality of ports formed along a longitudinal direction of the gas generator in a circumferential wall thereof extending along the longitudinal direction to establish a fluid communication between the gas generating chamber and an interior of the inflator housing;

and

an ignition means chamber connected to the gas generator and including an ignition unit adapted to ignite the gas generating agent.

18. (previously amended) A hybrid inflator according to claim 17, wherein the gas generating agent includes a fuel, an oxidizing agent, and a slug-forming agent.

19. (currently amended) A hybrid inflator for an inflating-type safety system of vehicles provided with an air bag, comprising:

an inflator housing containing a pressurized medium including an inert gas and no oxygen, said inflator having a gas exit opening closed by a rupturable disk and provided in a vicinity of a first end portion of the inflator housing:

a gas generating agent having a pressure index of less than 0.8;

a gas generator installed in the inflator housing and attached to a second end portion of the inflator housing opposing said first end portion with respect to a longitudinal direction of the inflator housing, said gas generator having at least one gas generating chamber ~~chambers~~ for storing a gas generating agent and having a plurality of ports formed along a longitudinal direction of the gas generator in a circumferential wall thereof extending along the longitudinal direction to establish a fluid communication between

the gas generating chamber and an interior of the inflator housing:
and

an ignition means changer connected to the gas generator and
including an ignition unit adapted to ignite the gas generating
agent.

20. (previously amended) A hybrid inflator according to
claim 1, wherein the inflator housing is made of high strength
steel.

21. (original) A hybrid inflator according to claim 20,
wherein the high strength steels has a tensile strength of being
not less than 60 kg /mm².

22. (previously amended) A hybrid inflator according to claim
1, wherein the gas generating agent is kept under a normal pressure
atmosphere.

23. (previously amended) A hybrid inflator according to claim
1, wherein the gas generating agent is formed in a perforated
cylindrical shape.

24. (currently amended) An air bag apparatus, comprising:
an activating signal outputting unit that includes an impact
sensor for detecting an impact and a control unit, and

a module case containing an air bag and a hybrid inflator, said hybrid inflator including,

an inflator housing containing pressurized medium therein and having a gas exit opening closed by a rupturable disk and provided in a vicinity of a first end portion of the inflator housing,

a gas generator installed in the inflator housing and attached to a second end portion of the inflator housing opposing said first end portion with respect to a longitudinal direction of the inflator housing, said gas generator having at least one gas generating chamber ~~for storing a gas generating agent therein~~ and having a plurality of ports formed along a longitudinal direction of the gas generator in a circumferential wall thereof extending along the longitudinal direction to establish a fluid communication between the gas generating chamber and an interior of the inflator housing;

a gas generating agent provided in the gas generating chamber, the gas generating agent being a mixture of at least a fuel and an oxidizing agent for generating a predetermined amount (B) of combustion gas by combustion thereof, a molar ratio (A/B) between an amount (A moles) of the pressurized medium and the amount (B moles) of a gas generated due to

Appl. No. 09/857,891

combustion of the gas generating agent is between $8/2$ and $1/9$,
and

an ignition unit connected to the gas generator and
adapted to ignite the gas generating agent.